JC03 Rec'd PCT/PTO 0 7 NOV 2001

FORM PTO-1390 (REV 11-2000) U S DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER	
GLN-011US	
U.S. APPLICATION NO. (If known, see 37 CFR 1.5)	
10/031649	

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/CH00/00262	11 May 2000	17 May 1999

TITLE OF INVENTION **HINGED ELECTRONIC WATCH**

APPLICANT(S) FOR DO/EO/US **RAY, Claude**

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. [X] This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. [ ] This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. [X] This is an express request to begin national examination procedures (35 U.S.C. 371 (f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. [X] The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. [X] A copy of the International Application as filed (35 U.S.C. 371 (c)(2))
   a. [X] is attached hereto (required only if not communicated by the International Bureau).
   b. [ ] has been communicated by the International Bureau.
   c. [ ] is not required, as the application was filed in the United States Receiving Office (RO/US).
6. [X] A translation of the International Application as filed (35 U.S.C. 371 (c)(2)).
   a. [X] is attached hereto.
   b. [ ] has been previously submitted under 35 U.S.C. 154(d)(4).
7. [X] A copy of the International Search Report (PCT/ISA/210).
8. [ ] Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. [ ] are attached hereto (required only if not communicated by the International Bureau).
   b. [ ] have been communicated by the International Bureau.
   c. [ ] have not been made; however, the time limit for making such amendments has NOT expired.
   d. [ ] have not been made and will not be made.
9. [ ] A language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. [ ] An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
11. [X] A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. [ ] A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 13 to 20 below concern document(s) or information included:

13. [X] An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. [ ] An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. [X] A FIRST preliminary amendment.
16. [ ] A SECOND or SUBSEQUENT preliminary amendment.
17. [ ] A substitute specification.
18. [ ] A change of power of attorney and/or address letter.
19. [ ] A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. [illegible]

Form PCT/IB/308
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Deposited by U.S. Express Mail No. ET437473441US on 7 November 2001

U.S. APPLICATION NO (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO	ATTORNEY'S DOCKET NUMBER
10/032164	PCT/CH00/00262	GLN-011US

21. The following fees are submitted:	CALCULATIONS PTO USE ONLY
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :	
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO **$1000.00**	
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO **$860.00**	
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445 (a)(2)) paid to USPTO **$710.00**	
International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$690.00**	
International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) **$100.00**	
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 860.00
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$ 0.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	$
Total claims	8 =	0	X **$18.00**	$ 0.00
Independent claims	1 =	0	X **$80.00**	$ 0.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$270.00**	$ 0.00
TOTAL OF ABOVE CALCULATIONS =				$ 860.00
☒ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by ½.			+	$ 430.00
SUBTOTAL =				$ 430.00
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.49(f)).				$ 0.00
TOTAL NATIONAL FEE =				$ 430.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property			+	$ 0.00
TOTAL FEES ENCLOSED =				$ 430.00
			Amount to be: refunded	$
			charged	$

a. ☐ A check in the amount of $ _____ to cover the above fees is enclosed.

b. ☒ Please charge my Deposit Account No. 11-0227 in the amount of $ 430.00 to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 11-0227. A duplicate copy of this sheet is enclosed.

d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO

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PATENT TRADEMARK OFFICE

SIGNATURE:

Deborah G. VandenHoff
NAME

45176
REGISTRATION NUMBER

10/031649
531 Rec'd PCT/PTO 07 NOV 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	PCT/CH00/00262	Group Art Unit	Not yet assigned
Int'l Filing Date	11 May 2000	Examiner Name	Not yet assigned
First Named Inventor	RAY, Claude	Attorney Docket No.	GLN-011US
Title: HINGED ELECTRONIC WATCH			

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

November 7, 2001

Dear Sir:

The above-identified international application is entering the National Phase under 35 U.S.C. § 371 simultaneously herewith. Kindly amend the application in the following manner:

IN THE CLAIMS

5. (Once Amended) Articulated watch according to [any of claims 1 to 4] claim 1, characterised in that the ends of each bar have an end portion projecting into the inside of the cases and in that said portion includes a groove cooperating with a wedge (62) to prevent any axial movement of the bar.

7. (Once Amended) Articulated watch according to [any of claims 1 to 6] claim 1, characterised in that each bar is formed of a hollow median portion (22a) and two end portions (22b) which constitute said ends and are formed of a cylindrical tube (58) fixed to said median portion.

EXPRESS MAIL

Express Mail No: ET437473441US **Date of Deposit: November 7, 2001**
This correspondence is being deposited with the Express Mail Post Office to Addressee service of the United States Postal Service under 37 C.F.R. § 1.10 on the date indicated above and is addressed to Assistant Commissioner for Patents, Washington, D.C. 20231

REMARKS

The claims have been amended to change dependencies in claims 5 and 7.

It is respectfully submitted that no new subject matter has been introduced by way of this amendment.

Respectfully submitted,

By: ______________________

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531 Rec'd PCT/PTO 07 NOV 2001

ARTICULATED ELECTRONIC WATCH

The present invention concerns an articulated electronic watch, i.e. including two juxtaposed cases which are joined to each other in an articulated manner.

A watch of this type is disclosed in Swiss Patent No. 647 916. The back covers of the two cases are articulated to each other by means of simple hinges. Sandwiched between the back cover and middle part of each case is a sealing gasket connected to the gasket of the adjoining case, at the location of the articulation, by a neck made of the same material, the assembly thus forming a sealing gasket in one piece. Electric conductors are arranged inside the necks to connect the electronic components of the two cases to each other.

Such a solution enables the realisation of a watch which can occupy a relatively large surface area on the wearer's wrist, while matching the shape thereof. However, it has the drawback of requiring articulations occupying practically the entire width of the case. This results in a certain heaviness of appearance. Moreover, the effect procured by the presence of two movements in two separate cases is not used to advantage.

The object of the present invention is to enable the realisation of a watch which includes several distinctly separate cases, but which has a particularly light appearance, allows numerous variants, can easily be adapted to the wearer's arm and allows sealing to be assured by simple means.

More precisely, the invention concerns an articulated watch of the type including:

- two juxtaposed cases, each containing an electronic movement and including a back cover, a middle part and a crystal, and
- connecting means for mechanically joining the two cases in an articulated manner and allowing the two movements to be connected using electrical conductors.

This watch is characterised in that said connecting means are formed of two bars which are arranged on either side of the cases, which include an internal channel for the passage of the electrical conductors and whose ends are mounted so as to rotate freely, but are locked in translation, in four holes

arranged in the middle parts of the cases along two substantially parallel axes, there being two coaxial holes per case.

Advantageously, the ends of the bars are fitted with a sealing gasket disposed within a groove arranged in the portion thereof which passes through the hole of the middle part, while the ends of the channels which open into the cases are closed in a watertight manner. The channels can also be filled with an organic material in which the electrical conductors are embedded.

According to a preferred embodiment, the ends of each bar have an end portion projecting into the interior of the cases which includes a groove co-operating with a wedge in order to prevent any axial movement of the bar. Moreover, this end portion also includes means for limiting the rotational movement of the bar.

Each bar is advantageously formed of a hollow median portion and two end portions which are formed of a cylindrical tube fixed to the median portion. The median portion includes a base comprising two holes into which the tubes are fixed, walls substantially perpendicular to the base and a cap covering said walls.

Other advantages and features of the invention will appear from the following description, which is made with reference to the annexed drawings, in which:

- Figure 1 shows an overall view of a watch according to the invention;
- Figure 2 shows, along a cross-section in the thickness of the watch of Figure 1, a bar connecting the portions of the cases in which its ends are engaged; and
- Figures 3 and 4 are partial enlarged views of Figure 2 respectively along the lines III-III and IV-IV.

Electronic watch 10 shown in Figure 1 includes two identical cases, an upper case 12, and lower case 14, substantially in the shape of a semi-circle, with a rounded portion 16 and a rectilinear portion 18. They each contain an analogue quartz movement (not shown).

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Rectilinear portions 18 of the two cases are parallel to each other but not in contact, so that there exists between them a gap 20, which is sufficiently large, typically from 1 to 2 mm, to show clearly that there are two completely separate and independent cases.

Cases 12 and 14 are joined by two lateral bars 22 which are perpendicular to their rectilinear portions 18 and are fixed symmetrically, in an articulated manner, around two parallel axes A, by each of their ends, in four holes arranged in rounded portions 16, there being two coaxial holes per case. In such a watch, it is very desirable for the link between the two cases to be articulated in such a way that it matches the shape of the wrist as well as possible. Bars 22 are also used to pass lead wires between the two cases assuring the electrical connection between their respective movements. They will be described in more detail with reference to Figures 2 to 4.

Cases 12 and 14 each include, in a conventional manner, a pair of horns 24 used respectively for attaching the two strands of a wristlet 26.

Each case 12 and 14 has a crystal, not visible in the drawing, coated on the inside, in the portion thereof contiguous to rectilinear portion 18, with a mask 28 the use of which will appear hereinafter.

Upper case 12 is fitted with a semi-dial 30 above which are situated an hour hand 32 and a minute hand 34. Likewise, lower case 14 is fitted with a semi-dial 36 above which are situated an hour hand 38 and a minute hand 40. Upper semi-dial 30 includes markings for the time display between 9 and 3 o'clock, while lower semi-dial 36 includes markings for the time display between 3 and 9 o'clock. Together, they thus constitute the normal dial of a watch.

Each of the analogue movements placed in the cases includes, for driving each hand, a motor and a gear train. One of them contains the electronic circuit driving the four motors in a co-ordinated manner, while the other contains the battery for the electric power supply of the whole.

Upper case 12 displays the hours comprised between 9 and 3 and the minutes comprised between 45 and 15, while lower case 14 displays the

hours comprised between 3 and 9 and the minutes comprised between 15 and 45. Thus, the watch of Figure 1 displays 9 o'clock by means of hand 32 of upper case 12, and 20 minutes by means of hand 40 of lower case 14. Minute hand 34 and hour hand 38 are then hidden by masks 28.

When a hand reaches the end of its travel, the electronic circuit rapidly causes it to move backwards, via a rotation slightly greater than 180°, into a standby position behind mask 28. The hand of the other case then takes over.

A detailed description of the means implemented to perform the above functions is provided in the French Patent Application entitled « WATCH WITH SECTOR DISPLAY» filed by the Applicant on the same date as the present Application.

Reference will now be made to Figures 2 to 4 which show the manner in which bars 22 assure not only the articulated mechanical connection between the two cases while preserving the sealing thereof, but also their electrical connection by providing passages for a plurality of lead wires 42.

Cases 12 and 14 each include a back cover 44 and a middle part 46 which is perforated, along axis A, with a cylindrical channel accommodating a sleeve 48. It is to be noted that sleeve 48 is not indispensable but in the absence thereof the accuracy of the mechanism is liable to be insufficient to assure sealing of the passage.

Bar 22 is formed of a median portion 22a perpendicular to axes A and two end portions 22b which are respectively coaxial to said axes. Median portion 22 includes a base 50 the ends of which have a recess occupying space on sleeves 48, walls 52 perpendicular to base 50, and a cap 54 covering walls 52 onto which it is bonded or welded. A channel 56 is thus formed between base 50 and cap 54.

As Figure 3 shows in more detail, each end portion 22b is formed of a cylindrical tube 58 driven in a water resistant manner by its end into a hole made in base 50. Tube 58 is itself engaged in sleeve 48 inside which it is fitted so as to be able to rotate freely. Tube 58 further includes in its median

portion which passes through sleeve 48, a first groove accommodating a sealing gasket 60 and, at its other end, situated inside the case, a second groove for locking a wedge 62 which allows the bar to be fixed in an articulated manner.

As can be seen more particularly in Figure 4, tube 58 includes, between the inner face of sleeve 48 and wedge 62, two diametrically opposite flat portions 64 which co-operate with an elongated plate 66 fitted with an oblong hole 68. This plate is held in place by a washer 70 inserted between the plate and wedge 62. In order to realise an articulation of limited amplitude, a groove 72 is made in the inner face of the middle part, in which plate 66 is engaged and whose width is substantially greater than that of said plate, which allows the bar to pivot over a certain amplitude.

As Figure 2 shows, lead wires 42 pass from one case to the other making use of channel 56. They are distributed in the two bars 22, one being used, for example, for supply conductors and the other for the control conductors.

Since the shape of cap 54 can, for reasons of aesthetic effect, be quite complex, it is difficult to assure a perfectly watertight connection of the system. It is also advantageous to close the holes of tubes 58, for example by means of a drop of glue 74 arranged at the end of said holes within the case. In a variant, the bar can simply be filled with an organic material in which the electrical lead wires are embedded.

The structure of the bars which have just been described allows a high level of security to be assured as regards sealing, while providing great aesthetic variety. Indeed, one need only manufacture caps 54 which are different in shape or in the material selected, to considerably change the general appearance of the watch. Two colour timepieces can thus be made by using caps made of gold, the cost of which remains modest and which gives the watch a very elegant appearance.

As can be seen in Figures 2 and 4, the electrical connecting wires 42 can be simply welded onto printed circuits 76 included in the two movements. It would also be possible to fix sockets to the end of the wires, the latter then

being screwed onto the printed circuits. In another variant, the electrical connection could also be made by means of a flexible printed circuit.

In the example described, the watch includes analogue display means in both cases. It goes without saying that other variants could be envisaged without thereby departing from the scope of the present invention. It would thus be possible to place an analogue display in one case and a digital display in the other, controlled by a single same quartz, or even to arrange a power supply provided with a generator in one of the cases and a conventional electronic movement in the other.

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CLAIMS

1. Articulated watch including:

- two juxtaposed cases (12, 14), each containing an electronic movement and including a back cover, a middle part and a crystal, and

- connecting means for mechanically joining the two cases in an articulated manner and allowing the two movements to be connected using electrical conductors (42),

characterised in that said means are formed of two connecting bars (22) which are arranged on either side of the cases, which include an internal channel (56) for the passage of the electrical conductors and whose ends are mounted so as to rotate freely, but are locked in translation, in four holes arranged in the middle parts of the cases along two substantially parallel axes (A), there being two coaxial holes per case.

2. Articulated watch according to claim 1, characterised in that the ends of the bars are fitted with a sealing gasket (60) disposed within a groove arranged in the portion thereof which passes through the hole of the middle part.

3. Articulated watch according to claim 2, characterised in that the ends of the channels opening out into the cases are sealed in a watertight manner.

4. Articulated watch according to claim 2, characterised in that the channels are filled with an organic material in which said electrical conductors are embedded.

5. Articulated watch according to any of claims 1 to 4, characterised in that the ends of each bar have an end portion projecting into the inside of the cases and in that said portion includes a groove co-operating with a wedge (62) to prevent any axial movement of the bar.

6. Articulated watch according to claim 5, characterised in that said end portion also includes means for limiting the rotational movement of the bar.

7. Articulated watch according to any of claims 1 to 6, characterised in that each bar is formed of a hollow median portion (22a) and two end portions (22b) which constitute said ends and are formed of a cylindrical tube (58) fixed to said median portion.

8. Articulated watch according to claim 7, characterised in that said median portion includes a base (50) provided with two holes in which said

tubes are fixed, walls (52) substantially perpendicular to said base and a cap (52) fixed to and covering said walls.

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ARTICULATED ELECTRONIC WATCH

ABSTRACT

The invention concerns an articulated watch including:

- two juxtaposed cases (12, 14), each containing an electronic movement, and
- connecting means for mechanically joining the two cases in an articulated manner and allowing the two movements to be connected using electrical conductors.

These connecting means are formed of two bars (22) which are arranged on either side of the cases, which include an internal channel for the passage of the electrical conductors and whose ends are mounted so as to rotate freely, but are locked in translation, in four holes arranged in the middle parts of the cases along two substantially parallel axes (A), there being two coaxial holes per case.

Figure 1

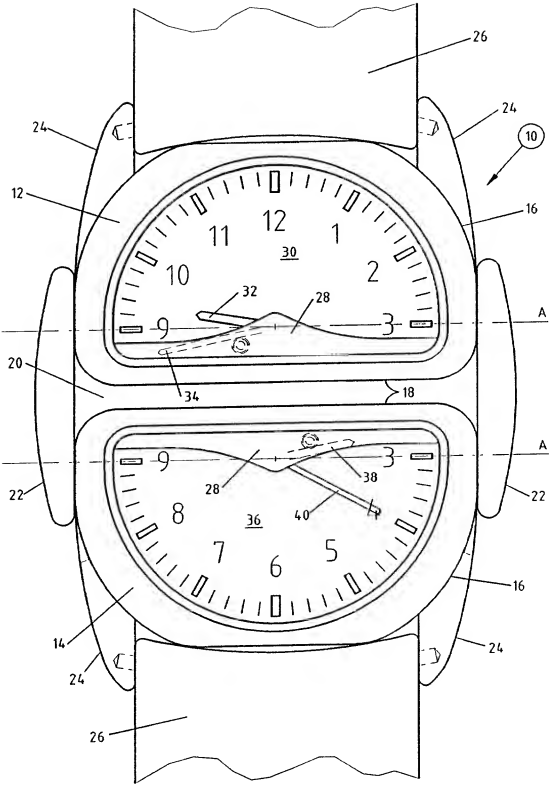

Fig. 1

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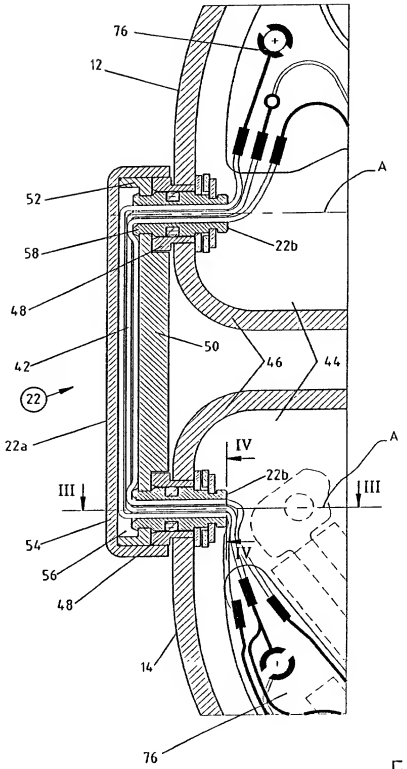

Fig. 2

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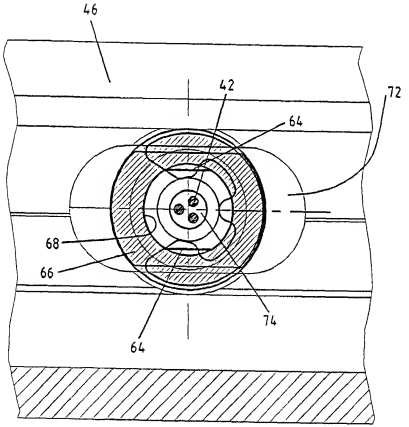

Fig. 4

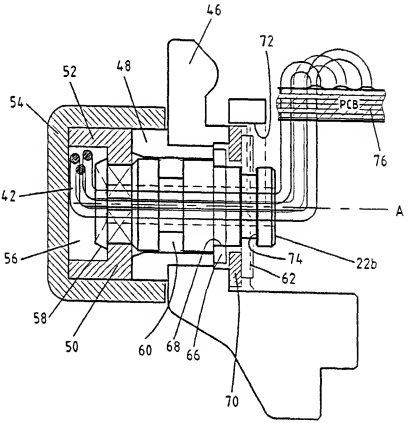

Fig. 3

10/021649

Declaration and Power of Attorney for Patent Application

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole/joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled

HINGED ELECTRONIC WATCH

the specification of which

( ) is attached hereto.
(X) was filed on **November 7, 2001** as United States Application No. **10/031,649** based on PCT International Application No. **PCT/CH00/00262** and was amended on _____.
(Date, if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			**Priority Not Claimed**
99 06317 (Number)	France (Country)	May 17, 1999 (Filing Date)	( )
_____ (Number)	_____ (Country)	_____ (Filing Date)	( )
_____ (Number)	_____ (Country)	_____ (Filing Date)	( )

Attorney's Docket No. GLN-011US

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

(Number)	(Filing Date)

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Number)	(Filing Date)	(Status: patented, pending, abandoned)
PCT/CH00/00262	**May 11 , 2000**	**pending**

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY

As a named inventor, I hereby appoint the following attorney(s) and/or agents(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

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